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EXAMINER	
PATEL, GAUTAM	

ART UNIT	PAPER NUMBER
2655	12

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/815,345	MA ET AL.	
	Examiner	Art Unit	
	Gautam R. Patel	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *6,7,10,11,15 and 19-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8,9,12-14,16-18,23-25,28,30-33 and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This is in response to amendment filed on 3-26-04 (Paper # 11).

2. Claims 1-5, 8-9, 12-14, 16-18 and 37-39 remain for examination.

Drawings/Objection

3. The drawings are objected for following reasons:

Proposed Drawing Correction Disapproved, New Matter.

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 3-26-04, paper # 10 have been disapproved because they introduce **new matter** into the drawings. 37 CFR 1.121(f) states that no amendment may introduce new matter into the disclosure of an application. The original disclosure does not support the showing of unit 100, first signal processing portion, second signal processing portion [40 or 50] or "SEEK DIRECTION signal" at all.

NOTE: Unit 40 in fig. 6, only produces TCS, NOT the combination of TCS **AND** TES as claimed.

Applicants are required to submit a proposed drawing correction, removing **ALL** new matter in response to this Office Action. Any proposal by the applicant for amendment of the drawings to cure defects must consist of following:

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment, and may be ***accompanied by a marked-up copy of one or more of the figures being amended, with annotations***. Any replacement drawing

sheet ***must be identified in the top margin as "Replacement Sheet"*** and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. ***Any marked-up (annotated) copy showing changes must be labeled "Annotated Marked-up Drawings" and accompany the replacement sheet in the amendment (e.g., as an appendix).***

Corrections are required.

Specification-Objection

4. The specification is objected for introducing **new matter** in the last amendment, dated 3-26-04, paper no. 11. The concept of unit 100 was not described in the original specification at all. Also TCS is output from second signal processing portion 40 [fig. 6], which is derived from second optical detector 27 [see paragraph 28, specification].

Generation of TCS from second signal processing portion 40 **OR** 50 ***AND*** the TES was not defined and or explained in original specification and/or original claims at all.

Claim Rejections - 35 U.S.C. § 112

5. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Page 10, paragraph 28 simply states that "second signal processing portion 40 outputs track cross signal (TCS)". The specification does not disclose at all that the second signal processing portion generates the seek direction detecting signal at all.

The concept of unit 100 was not described in the original specification or original claims at all. Also TCS is an output from second signal processing portion 40 [fig. 6], which is derived from second optical detector 27 [see paragraph 28, specification].

Generation of TCS from second signal processing portion 40 **OR** 50 ***AND*** the TES was not defined and or explained in original specification and/or original claims at all.

The second electrical signals used by the second signal processing portion is clear NEW MATTER in the amended claim 2.

The claims now introduces the NEW MATTER described above.

6. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, lines 8-11 "the second electrical signals used by the second processing portion to generate the seek direction detecting signal with the track error signal include the second electrical signals respectively detected by the outer pair of first and second outer light receiving portions and the inner pair of first and second inner light receiving portions." is confusing and unclear. Since **BOTH** inner and out portion of the photodiodes are part of second detector only, which only produces TCS, it is not clear how they can also produce seek direction without the help of TES signal.

Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be

patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 8-9, 12-14, 16-17 and 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura et al., US. patent 5,986,996 (hereafter Kitamura) in view of AAPA (applicants Admitted Prior Art).

As to claim 1, Kitamura discloses the invention as claimed [see Figs. 1-22, especially 1, 7-11], including a light dividing unit, a first optical detector, a second optical detector and a signal processing portion comprising:

a light dividing unit [fig. 1, unit 6] to divide an incident light beam into a main beam and a sub-beam to form on an optical disk a main beam spot and a sub-beam spot having an optical aberration, the main beam and the sub-beam being focused in a track direction of the optical disk, the light dividing unit being disposed so that a direction of the optical aberration is in a radial direction of the optical disk [col. 9, line 28 to col. 10, line 32 and col. 11, lines 41-60];

an optical detector [fig. 1, unit 4] comprising:

a first optical detector [fig. 1, 4a] having light receiving portions to receive the main beam reflected from the optical disk, and to convert portions of the reflected main beam into independent first electrical signals [col. 9, line 63 to col. 10, line 32 and col. 11, lines 6-60], and

a second optical detector [fig. 1, unit 4b] to receive the sub-beam reflected from the optical disk, and to convert portions of the received sub-beam into independent second electrical signals [col. 9, line 63 to col. 10, line 32 and col. 11, lines 6-60]; and

a signal processing portion [fig. 1, unit 12] [col. 9, lines 51-62].

As to claim 1, Kitamura discloses all of the above elements including a signal processing portion and plurality of photo-detecting portions arranged in outer and inner fashion in radial direction [see fig. 1, and 9]. Kitamura does not specifically disclose well known details of the signal processing portion; or circuitry that is inherently present within the signal processor.

However AAPA clearly discloses:

a first signal processing portion [fig. 2, units 3, 4, 5 and 6] to detect a track error signal from the first electrical signals, and

a second signal processing portion [fig. 2, unit to generate the seek direction detecting signal from the second electrical signals and the track error signal [specification pages 1-3].

Both Kitamura, and AAPA are interested in providing track error correcting and focus error correcting signal in system with 3-beam method. Both shows multiple light detectors arranged in radial and tangential directions, both has signal processing portions.

Therefore, it would have been obvious to provide the system of Kitamura with signal processing portion and associated details as taught by AAPA. The application or use of the signal processing portion as taught by AAPA would have been obvious, because the signal processing portion performs the same function in the same way as the signal processing portion of Kitamura's system, and is an equivalent element. One of ordinary skill in the art would have recognized that the signal processing portion of AAPA was equivalent and an obvious alternative to signal processing portion of system of Kitamura.

9. As to claim 8, it is rejected for the same reasons set forth in the rejection of claim 1, supra.

10. As to claim 9, AAPA discloses:

said light receiving portions comprise first light receiving portions [fig. 2, unit 2a] to receive the reflected main beam and to generate the first signals, and second light

receiving portions [fig. 2, units 2b & 2c] to receive the reflected sub-beam and to generate the second signals, and said signal processing portion comprises:

a first signal processing portion [fig. 2, units 4, 5, and 6] to output a track error signal from the first signals, and

a second signal processing portion [fig. 2, unit 7] to output the seek direction detecting signal from the second signals and the track error signal [specification pages 1-3].

11. As to claim 12, AAPA discloses:

the second signal processing portion comprises a track cross signal generator that generates a track cross signal from the second signals [specification pages 1-3].

12. As to claim 13, Kitamura discloses:

the second optical light receiving portions comprises inner [13c & 13f] and outer light receiving portions [13d & 13e] aligned along a radial direction of the optical disk, and the inner light receiving portions being disposed between the outer light receiving portions [col. 11, lines 6-60].

13. As to claim 14, AAPA discloses:

the track cross signal generator comprises a differential amplifier [fig. 2, unit 6] to differentiate a first summed pair [S1d] of the second signals [S2d] from a first pair of the inner and outer light receiving portions and a second summed pair of the second signals from a second pair of the inner and outer light receiving portions [specification pages 1-3].

14. As to claim 16, AAPA discloses:

the second signal processing portion comprises a track cross signal generator [fig. 2, unit 3] that generates a track cross signal from the second signals without the first signals [fig. 2, output of unit 3] [specification pages 1-3].

15. As to claim 17, AAPA discloses:

the second signal processing portion generates the seek direction detecting signal by comparing a phase difference between the track cross signal and the track error signal [specification pages 1-3].

16. As to claims 37-39, they are method claims corresponding to claims 8-9 and 16 respectively and they are therefore rejected for the same reasons set forth in the rejection of claims 8-9 and 16 respectively, supra.

17. Claims 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura and AAPA as applied to claims 1, 8-9, 12-13 above, and further in view of Lee et al., US. patent 5,706,263 (hereafter Lee).

As to claim 18, Kitamura and AAPA discloses all of the above elements, including beam spots and light receiving portions in high density storage system. Combination of Kitamura and AAPA does not specifically discloses that the light receiving portions width is 0.2 to 0.8 times a diameter of a beam spot on the disk.

However, it is well known in the art that almost all high density system uses the photodetector whose width is smaller than the beams spot to achieve higher resolution.

Also Lee clearly discloses:

a combined width of the inner light receiving portions is .33 to .66 [or within the limits of 0.2 to 0.8] times a diameter of a beam spot formed by the reflected sub-beam on the optical disk [abstract and col. 3, line 34 to col. 4, line 15].

All Kitamura, AAPA and Lee are interested in improving the recording mechanism of the disk and all of them disclosed different widths of the beam spots as compared to photodetector's width. All of them interested in high density recording.

One of ordinary skill in the art at the time of invention would have realized that high density recording would be sensitive to jitter caused by the interfering light and reproduction quality reduction, due high density. So, one would be motivated to reduce this unwanted noise and increase reproduction quality. Therefore, it would have been

obvious to have used a photodiode with width which is smaller than the beam spot in the system of Kitamura and AAPA as taught by Lee because one would be motivated to reduce jitter caused by the interfering light and improve high resolution reproduction [abstract; Lee].

Kitamura and Lee were cited as prior art references in paper no. 9, mailed 12-31-03.

18. A search based on the best understanding of the claims has been made to find the most pertinent art, but no statement about invention will be appropriate at this time regarding the allowableness of claims 2-5 and no art rejection will be made in this office action regarding the claims 2-5, due to the speculation required to interpret the claims because of their indefiniteness under 35 U.S.C. 112, 1st and 2nd paragraphs as noted above, and new matter issues. (see In re Steele, 134 USPQ 292).

19. Applicant's arguments filed on 3-26-04 (Paper # 11) have been fully considered but they are not deemed to be persuasive for the following reasons.

20. In the REMARKS, the Applicant argues as follows:

A) That: "Reconsideration and withdrawal of the outstanding objections to the drawings are respectfully requested." [page 15; para. 3; REMARKS].

Please see objection to drawings above. This objection realtes to new matter. In last objection it was pointed out that no NEW MATTER should be added. This drawings contains new matter, therefore objections stands.

B) That: "it is respectfully submitted that claims 2-5 remains complaint with 35 U.S.C. § first paragraph. .... claims 2-5 remains complaint with 35 U.S.C. § first paragraph" [page 15; para. 6 to page 16, para. 1; REMARKS].

The problem with 112 first and second remains with addition of new mater as described above.

C) That: "However, Kitamura et al. does not suggest that the hologram 6 forms te aberration on the optical disk 1, or that there is an advantage in so doing instead of forming the aberration on the photo-detector array 4. [page 16; para. 4; REMARKS].

Kitamura clearly discloses that aberration is formed on the optical disk by unit 6 [col. 9, lines 47-51]. These lines states that **beam 7 passes through hologram 6 and is converged on the recording layer of optical disk 1 by the objective lens 5**.

D) That: "For similar reasons, it is respectfully submitted that the combination of Kitamura and the Other device does not disclose or suggest the invention as recited in claims 8 and 37." [page 17; para. 2; REMARKS].

For the similar reasons as explained above the combination of Kitamura and AAPA does indeed teach all these limitations as explained in detail in above rejection.

21. **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact information

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

Gautam R. Patel
Primary Examiner
Group Art Unit 2655

GAUTAM R. PATEL
PRIMARY EXAMINER

May 26, 2004